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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention]This invention relates to an image processing device, especially relates to the image processing device which can arrange in parallel and process two or more jobs, such as a copy job (copy job), a facsimile transceiver job (facsimile job), and a print job.

[0002]

[Description of the Prior Art]Conventionally, in the printer or the facsimile machine, a priority is set as each of two or more jobs by the generating origin of a job, or processing number of sheets, and the art of performing processing in consideration of a priority is proposed. For example, the art about a printer with possible making it sink below a print job with little number of pages into the print job which performs huge printing of the number of pages to JP,5-32017,A is indicated.

[0003]In the image processing device which has a copy function and a facsimile function, for example, it sets beforehand whether the priority processing of the job corresponding to which function is carried out to the publication-number No. 103143 gazette, and the art of performing the priority processing of a job according to setting out is indicated. Furthermore, JP,5-756,A is made to sink below a copy job to a print job, or the art of making it sinking at a time below 1 page of print jobs to a copy job is indicated.

[0004]

[Problem(s) to be Solved by the Invention]By the way, in memory accumulation type a print job and a copy job, since information, including the number of pages etc. which are printed beforehand, is transmitted to an image processing device, it is easy to determine the priority of processing based on these information. On the other hand, since the information for judging the priority of a user's information, including manuscript number of sheets etc., and urgency was not able to be acquired a priori in the facsimile job in manual transmission mode, it was difficult to set up a priority among other jobs.

[0005]For this reason, since the priority of the facsimile job in manual transmission mode was lowest set up in the former, Even if it is going to perform the facsimile job of the few number of pages during processing of a memory accumulation type print job or a copy job, Reading of a manuscript etc. could not be performed until the print job and the copy job were completed, but there was a problem that the fault that an operator must wait will arise.

[0006]Even if it connected the telephone line that a facsimile job should be performed, a manuscript could not be read because of the print job or the copy job, but the circuit unused period after a line

connection occurred, and there was a problem that communication cost will increase. Then, it raises the circuit capacity factor after a line connection, and there is in providing the image processing device which can reduce communication cost while being able to shorten waiting time, when the purpose of this invention is directed [the facsimile job in manual transmission mode], even if it is a case where other jobs are performed.

[0007]

[Means for Solving the Problem]The composition according to claim 1 equips with the following an image processing device which can arrange in parallel and process two or more jobs.

A memory measure which memorizes image data inputted from the exterior where a storage area was assigned by allocation permission information.

A transmission means which generates image data for transmission based on image data memorized to said memory measure, and is transmitted via a communication line.

A job discriminating means which distinguishes whether a job corresponding to said image data is a manual transmission job, A quota permission means which generates said allocation permission information in order to give priority to said storage area over other jobs and to assign it to the job concerned, when said job is a manual transmission job based on a result of said distinction.

[0008]According to the composition according to claim 1, a job discriminating means distinguishes whether a job corresponding to image data is a manual transmission job. A quota permission means generates allocation permission information so that it may give priority to a storage area over other jobs and may assign it to the job concerned, when a job is a manual transmission job based on a result of distinction. A memory measure memorizes image data inputted from the exterior where a storage area was assigned by allocation permission information. Therefore, when a job is a manual transmission job, priority will be given to a transmission means, and it will generate image data for transmission, and will transmit it via a communication line.

[0009]The composition according to claim 2 equips with the following an image processing device which can arrange in parallel and process two or more jobs.

A reading means which reads a manuscript and outputs image data.

A memory measure which memorizes said image data to which a storage area was assigned by allocation permission information.

A transmission means which transmits image data memorized to said memory measure via a communication line, A job discriminating means which distinguishes whether said job corresponding to said image data is a manual transmission job, A quota permission means which generates said allocation permission information in order to give priority to said storage area over other jobs and to assign it to the job concerned, when said job is a manual transmission job based on a result of said distinction.

[0010]According to the composition according to claim 2, a reading means reads a manuscript and outputs image data to a memory measure. On the other hand, a job discriminating means distinguishes whether a job corresponding to image data is a manual transmission job. A quota permission means generates allocation permission information so that it may give priority to and assign a storage area to the job concerned rather than other jobs, when a job is a manual transmission job based on a result of distinction, and a memory measure memorizes image data to which a storage area was assigned by allocation permission information. Therefore, when a job is a manual transmission job, priority will be

given to a transmission means, and image data corresponding to the job concerned will be transmitted via a communication line.

[0011]The composition according to claim 3 equips with the following an image processing device which can arrange in parallel and process two or more jobs.

An image processing means which outputs deed processed image data for processing to image data inputted from the exterior.

A transmission means which generates said image data for processed-image-data group ***** transmission, and is transmitted via a communication line.

A job discriminating means which distinguishes whether a job corresponding to said image data is a manual transmission job, A processing controlling means which gives priority to said image data corresponding to the job concerned over other jobs, and makes said image processing means process it based on a result of said distinction when said job is a manual transmission job.

[0012]According to the composition according to claim 3, a job discriminating means, Distinguish whether a job corresponding to image data is a manual transmission job, and a processing controlling means, When a job is a manual transmission job, give priority to image data corresponding to the job concerned over other jobs, and an image processing means is made to process it based on a result of distinction, and processed image data is outputted to a transmission means. Therefore, when a job is a manual transmission job, priority will be given to an image processing means, image data corresponding to the job concerned will be processed, as a result a transmission means will transmit image data for transmission preferentially, when a job is a manual transmission job.

[0013]The composition according to claim 4 equips with the following an image processing device which can arrange in parallel and process two or more jobs.

A reading means which reads a manuscript and outputs image data.

A memory measure which memorizes said image data.

An image processing means which outputs deed processed image data for processing to said image data memorized to said memory measure, A transmission means which transmits said processed image data via a communication line, and a job discriminating means which distinguishes whether said job corresponding to said image data is a manual transmission job, A processing controlling means which gives priority to said image data corresponding to the job concerned over other jobs, and makes said image processing means process it based on a result of said distinction when said job is a manual transmission job.

[0014]According to the composition according to claim 4, a reading means reads a manuscript, and outputs image data to a memory measure, and a memory measure memorizes image data. On the other hand, a job discriminating means distinguishes whether a job corresponding to image data is a manual transmission job, and when a job is a manual transmission job, a processing controlling means gives priority to image data corresponding to the job concerned over an image processing means rather than other jobs, and is made to process based on a result of distinction. Therefore, a transmission means will transmit image data for transmission preferentially, when a job is a manual transmission job.

[0015]

[Embodiment of the Invention]Next, the suitable embodiment of this invention is described with reference to drawings.

1. The outline configuration block figure of an image processing device is shown in the lineblock diagram 1 of an image processing device. The picture input device 1 for inputting the image data which should be processed with an image processing device, if the image processing device 100 is divided roughly, The image output device 3 for performing an output process based on the image data processed with the prime controller 2 which performs control and job control of the whole image processing device, and the image processing device, It holds until the job of which the image data managed per the job unit and page was required is completed, and it has the image storage 4 to memorize and is constituted.

[0016]Furthermore, the image processing device 100, It is distinguished whether image data is inputted from any of the installation manuscript read unit 11 later mentioned when inputting image data via the picture input device 1, the conveyance manuscript read unit 12, the printer image input unit 13, or the fax (FAX) image input unit 14, It is distinguished via any of the below-mentioned record paper output unit 31 or the FAX-images output unit 32 the image output device 3 outputs a picture, In using the FAX-images output unit 32 furthermore, The job recognition device 5 for distinguishing any in the manual transmission mode which transmits directly without a transmitting mode's making a note and accumulating in accumulation mode or a memory they are, It has the image processing device 6 which processes various image data, such as compression, extension, rotation, edit, gray scale conversion, and definition conversion, to the inputted image data, and is constituted.

[0017]The installation manuscript read unit 11 which the picture input device 1 scans the manuscript laid in the platen portion which is not illustrated with a user's image reading directions, generates image data, and is inputted, The conveyance manuscript read unit 12 which comprises ADF (Auto Document Feeder) etc., scans, conveying 1 or two or more manuscripts, generates image data, and is inputted, While receiving the print request from the host device connected via the network etc., The printer image input unit 13 which inputs the transmitted image data as image data which can be processed with the image processing device 100 concerned, The facsimile information which received via the telephone line is decoded, and it has the FAX-images input unit 14 inputted as image data which can be processed with the image processing device concerned, and is constituted.

[0018]The record paper output unit 31 which outputs the image data which received the image output device 3 by the copy job or the print job to a predetermined record paper, It has the FAX-images output unit 32 which encodes image data and transmits via a telephone line as facsimile information, and is constituted. While the image storage 4 performs the input or output of image data between the picture input device 1 or the image output device 3, Although it is alike even if it outputs and inputs image data between the primary storage unit 41 which comprised RAM with a small storage capacity, etc., and the primary storage unit 41, although data can be transmitted comparatively at high speed, and data transfer speed is a low speed comparatively, A storage capacity is provided with the secondary-storage unit 42 which comprised a large hard disk drive etc., and is constituted.

[0019]In this case, the secondary-storage unit 42, The image data which the image data concerned was transmitted and was memorized when the image data inputted into the primary storage unit 41 was not used immediately, or when the output process of image data was not immediately performed via the image output device device 3, and was memorized to the primary storage unit 41 if needed is transmitted. Here, in advance of concrete explanation of an image processing device of operation, the job information data which the job recognition device 5 holds is explained. [0020]2. An example of the composition of the job information data table currently held at the job recognition device 5 is shown in

the lineblock diagram 2 of job information data. The job information data table 51 comprises two or more job information data, and each job information data, Job ID information 51A for specifying each job, and the chronological-order data 51B showing the occurrence order of each job, The input unit data 51C to which the image data corresponding to each job means whether the installation manuscript read unit, the conveyance manuscript read unit, the printer image input unit, or the fax (FAX) image input unit was inputted either, The output unit data 51D which means whether it outputs [either record paper output units or FAX-images output units] for the image data after the processing corresponding to each job, It is constituted including the manual transmission mode data 51E showing whether it is that the job concerned is performed in manual transmission mode, the manuscript number-of-sheets data 51F showing the settled manuscript number of sheets, and the number data 51G of outputting parts showing number of copies which should be outputted with an output unit.

[0021]More specifically the job of job ID information =9, It is the job generated in the 48th, and an input unit is a conveyance manuscript read unit, an output unit is a record paper output unit, and, as for the job concerned, not a job but the manuscript number of sheets in manual transmission mode express that 15 pages and the number of outputting parts are three copies. The job of job ID information =4 is a job generated in the 52nd, An input unit is a conveyance manuscript read unit, and an output unit is a FAX-images output unit, and the job concerned is a job in manual transmission mode, and it expresses that manuscript number of sheets is undecidedness and the number of outputting parts is one copy.

[0022]3. Explain the image management data table for managing the image data memorized by style Shigeji of image management data with reference to drawing 3 at the image storage 4. Job ID information 43A for the image management data table 43 to specify each job, Page ID information 43B showing whether the image data corresponding to two or more pages which constitutes the job concerned uses which page, The primary storage storing address information 43C showing in what address of the primary storage unit 41 the image data corresponding to page ID information 43B is stored, It has the secondary-storage storing address information 43D showing in what address of the secondary-storage unit 42 the image data corresponding to page ID information 43B is stored, and the size data 43E showing the size of the image data corresponding to page ID information 43B, and is constituted.

[0023]More specifically the image data of job ID information=9 and page ID information =1, While being stored in the size 60, i.e., the field up to the 200th street [260th] -, by making the 200th street into a start address on the primary storage unit 41, It means being stored in the size 60, i.e., the 100th street [160th] -, by making the 100th street into a start address on the secondary-storage unit 42.

[0024]The image data of job ID information=8 and page ID information =1, It means it already not being stored on the temporary storage unit 41, but being stored in the size 80, i.e., the 900th field [980th] -, by making the 900th street into a start address on the secondary-storage unit 42.

[0025]4. Explain the memory state of the image data in the image data memory state of a primary storage unit, then the primary storage unit 41 with reference to drawing 4. In this case, let the primary storage unit 41 be what has possible memorizing the image data for 3 pages (the picture 1 - the picture 3 show among a figure).

[0026]The primary storage unit 41 is provided with the three storage areas 41-1 to 41-3 which are respectively equivalent to a part for the 100th street as shown in drawing 4 (a). The operating condition data table 41A showing the condition of use of the primary storage unit 41 corresponding to this three storage area 41-1 to 41-3, As shown in drawing 4 (b), job ID information 41B and page ID information

41C of image data which are stored in every start address (=0,100,200) are memorized.

[0027]In the 1st storage area 41-1 that is start address =0, drawing 4 (b) more specifically. Image data is not stored but in the 2nd storage area 41-2 that is start address =100. The image data of job ID information=8 and page ID information =2 is stored, and the state where the image data of job ID information=9 and page ID information =1 is stored is shown in the 3rd storage area 41-3 that is start address =200.

[0028]5. the image data memory state of a secondary-storage unit -- explain the memory state of the image data in the secondary-storage unit 42 with reference to drawing 5 below. The secondary-storage unit 42 is provided with the 300 storage areas 42-1 to 41-300 which are respectively equivalent to a part for the 100th street as shown in drawing 5 (a).

[0029]The operating condition data table showing the condition of use of the secondary-storage unit 42 corresponding to this 300 storage area 42-1 to 42-300, As shown in drawing 5 (b), the job ID information and page ID information of image data which are stored in every start address (=0, 100 and 200, ..., 29800, 29900) are memorized.

[0030]In the 1st storage area 42-1 that is start address =0, drawing 5 (b) more specifically. Image data is not stored but in the 2nd storage area 42-2 that is start address =100. The image data of job ID information=9 and page ID information =1 is stored, and the state where the image data of job ID information=6 and page ID information =5 is stored is shown in the 300th storage area 42-300 that is start address =29900.

[0031]6. Explain the input process of image data, next the input process of image data with reference to drawing 6. First, the prime controller 2 notifies the start of a job to a job recognition device with the job initiation directions from a user (Step S101). A job recognition device will register job information data as shown in drawing 2 by this (Step S102).

[0032]If the start of a job is notified, the job ID information for specifying the job concerned will be set up, and, more specifically, the chronological-order data equivalent to the occurrence order of the job concerned will be set up. It asks a picture input device from any image data shall be inputted between an installation manuscript read unit, a conveyance manuscript read unit, etc., an input unit is specified, and input unit data is set up.

[0033]If it is a fax job, a fax generating picture unit is specified as an output unit, if it is other jobs, a record paper output unit will be specified as an output unit, and output unit data will be set up. In addition, in being a fax job, it distinguishes whether it is in manual transmission mode, and sets up manual transmission mode data.

[0034]Next, the prime controller 2 will perform reading processing to all the manuscripts. More, in details, that the storage area of image data should be secured to the image storage 4, as shown in drawing 7, the prime controller 2, The assignment request data for obtaining use assignment to the assignment request data registration unit which the image storage 4 does not illustrate will be registered (Step S103), and an assignment request will be outputted to the image storage 4 (Step S104).

[0035]6.1 storage allocation processing and assignment request data -- explain storage allocation processing and assignment request data with reference to drawing 7 and drawing 8 here. By the way, since the primary storage unit 41 is small capacity comparatively, it may be unable to assign a desired field immediately to an assignment request. Then, in such a case, processing will be suspended until the image storage 4 memorizes the below-mentioned assignment request data to the assignment request data

table and assignment of it is attained.

[0036]The order data 44A of an assignment request in which the assignment request data table 44 expresses the turn of an assignment request as shown in drawing 7, It has job ID information 44B for specifying the image data which is demanding assignment and page ID information 44C, and the demand source data 44D showing any of the picture input device 1 or the image output device 3 the demand origin which is performing the assignment request concerned is, and is constituted.

[0037]The assignment request data of order data [of an assignment request] =1 is job ID information=9, is page ID information=2 and, more specifically, expresses that a requiring agency is an image output device. Next, the interruption processing for performing storage allocation processing is explained with reference to drawing 8. First, with reference to assignment request data, the order data of an assignment request is the smallest, namely, make into the assignment request R the assignment request by which the assignment request was made most previously, and the assignment request to which assignment should be permitted eventually is made into the assignment request A, The assignment request A is emptied (Step S701). (blank;, i.e., an applicable assignment request, is nothing)

[0038]And the inside of the paddle with which the assignment request applicable to whether the assignment request R is empty and the assignment request R exists is distinguished (Step S702). In distinction of Step S702, when the assignment request R is empty, it is distinguished whether (Step S702; Yes) and the assignment request A are empty (Step S711).

[0039]In distinction of Step S711, since the assignment request which should assign (Step S711; Yes) and a storage area does not exist when the assignment request A is empty, processing is ended. Since it cannot be when the assignment request A is not empty when processing of Step S711 is the first distinction in the interruption processing concerned, explanation is omitted here.

[0040]In distinction of Step S702, when the assignment request R is not empty, it is distinguished whether an assignable storage area exists in (Step S702; No) and the primary storage unit 41 to the assignment request R (Step S703). In distinction of Step S703, when an assignable storage area does not exist to the assignment request R, (Step S703; No), The assignment request by which the assignment request was made by the next of the present smallest namely, assignment request R of the order data of an assignment request is carried out to the next of the present assignment request R with the assignment request R (Step S710), processing is again shifted to Step S702, and same processing is performed hereafter.

[0041]In distinction of Step S703, when an assignable storage area exists to the assignment request R, (Step S703; Yes) and the assignment request A distinguish whether it is empty (Step S704). In distinction of Step S704, when the assignment request A is empty, (Step S704; Yes), The assignment request R is made into the assignment request A (Step S709), the assignment request by which the assignment request was made by the next of the present assignment request R is made into the assignment request R (Step S710), processing is again shifted to Step S702, and same processing is performed hereafter.

[0042]In distinction of Step S704, when the assignment request A is not empty, (Step S704; No), the job which advanced the assignment request R, and the job which advanced the assignment request A distinguish whether it is the same job (Step S705). In distinction of Step S705, when the assignment request R and the assignment request A are advanced by the same job, (Step S705; Yes), An assignment request carries out the made assignment request to the next of the present assignment request R with the assignment request R (Step S710), processing is again shifted to Step S702, and same processing is

performed hereafter.

[0043]In distinction of Step S705, when the job which advanced the assignment request R, and the job which advanced the assignment request A are another jobs, it is distinguished whether (Step S705; No) and the assignment request A are assignment requests in manual transmission mode (Step S706).

[0044]Since the priority which should assign a storage area is higher than the assignment request R in distinction of Step S706 if the assignment request A is an assignment request from the job in manual transmission mode (Step S706; Yes), The assignment request A is left intact, the assignment request by which the assignment request was made by the next of the present assignment request R is made into the assignment request R (Step S710), processing is again shifted to Step S702, and same processing is performed hereafter.

[0045]In distinction of Step S706, when the assignment request A is not an assignment request from the job in manual transmission mode, (Step S706; No), The assignment request R distinguishes whether it is an assignment request from the job generated before the assignment request A by referring to the order data of an assignment request (Step S707). When the assignment request R is an assignment request from the job generated before the assignment request A in distinction of Step S707, (Step S707; Yes), The assignment request R is made into the assignment request A (Step S709), the assignment request by which the assignment request was made by the next of the present assignment request R is made into the assignment request R (Step S710), processing is again shifted to Step S702, and same processing is performed hereafter.

[0046]In distinction of Step S707, when the assignment request R is an assignment request from the job generated after the assignment request A, it is distinguished whether (Step S707; No) and the assignment request R are assignment requests from the job in manual transmission mode (Step S708). In distinction of Step S708, if the assignment request R is an assignment request from the job in manual transmission mode (Step S708; Yes), The assignment request R is made into the assignment request A (Step S709), the assignment request by which the assignment request was made by the next of the present assignment request R is made into the assignment request R (Step S710), processing is again shifted to Step S702, and same processing is performed hereafter.

[0047]In distinction of Step S708, when the assignment request R is not an assignment request from the job in manual transmission mode, (Step S708; No), An assignment request carries out the made assignment request to the next of the present assignment request R with the assignment request R (Step S710), processing is again shifted to Step S702, and same processing is performed hereafter. Thus, when two or more assignment requests are made, by performing field quota processing, the assignment request with the highest priority to which assignment of a storage area should be permitted will go into the assignment request A eventually, and assignment will be permitted to the assignment request A by Step S712.

[0048]When especially a job includes the job corresponding to manual transmission mode, assignment will be preferentially permitted to the job corresponding to the manual transmission mode concerned. If an assignment request is outputted, the prime controller 2 will distinguish whether assignment of the storage area was permitted by the field quota processing mentioned above (Step S105). the case where assignment of a storage area is not permitted in distinction of Step S105 -- (Step S105; No) -- it will be in a waiting state as it is.

[0049]In distinction of Step S105, when assignment of a storage area is permitted, (Step S105; Yes) and the picture input device 1 will input and write the image data for an one-page manuscript in the storage

area of the assigned primary storage unit 41 (Step S106). And after the writing of the image data for 1 page is completed, an image input terminating notice is performed to the image storage 4, a storage area is released (Step S107), and the manuscript input process for 1 page is ended.

[0050]6.2 image input terminating notice processing -- explain image input terminating notice processing with reference to drawing 9 here. The image storage 4 which received the notice of the end of an image input from the picture input device 1 transmits the image data which the primary storage unit 41 holds to the secondary-storage unit 42 (Step S501).

[0051]And after transmission is completed, the storage area of the temporary storage unit 41 which the image data concerned was using is released, and it updates having added the image data concerned to the secondary-storage unit 42 to the picture data table 43 (Step S502). And the above-mentioned storage allocation processing (refer to drawing 8) is performed (Step S503).

[0052]Next, it is distinguished whether the manuscript ended the prime controller 2 (Step S108). In distinction of Step S108, when the manuscript is not yet completed, (Step S108; No) and processing are again shifted to Step S103, and processing of Step S103 - Step S108 is repeated.

[0053]In distinction of Step S108, when the input of all the manuscripts and writing are completed, (Step S108; Yes) and the prime controller 2, The manuscript number-of-sheets data showing the settled manuscript number of sheets is registered as definite job information data to a job recognition device (Step S109), and a manuscript input process is ended.

[0054]7. Explain the output process of image data, next the output process of image data with reference to drawing 10 thru/or drawing 13. The processing flow chart of the image data output process in various jobs other than manual transmission mode is shown in drawing 10.

[0055]First, the prime controller 2 distinguishes [whether an output is possible promptly in the image data corresponding to the page which should be outputted, and] whether the image data concerned is already stored in the primary storage unit 41 (Step S201). Next, the prime controller 2 that the storage area of image data should be secured to the image storage 4, The assignment request data for obtaining use assignment to the assignment request data registration unit which the image storage 4 does not illustrate will be registered (Step S202), and an assignment request will be outputted to the image storage 4 (Step S203).

[0056]And the prime controller 2 distinguishes whether assignment of the storage area was permitted by the field quota processing mentioned later (Step S204). the case where assignment of a storage area is not permitted in distinction of Step S204 -- (Step S204; No) -- it will be in a waiting state as it is. In distinction of Step S204, when assignment of the storage area to a primary storage unit is permitted, image data is transmitted to the assigned field concerned from (Step S204; Yes) and the secondary-storage unit 42 (Step S205).

[0057]The image output device 3 will output the image data for an one-page manuscript from the storage area of the assigned primary storage unit 41 by this (Step S206). And an end of the output process of the image data for 1 page will perform a generating picture terminating notice to the image storage 4 that the storage area of the assigned primary storage unit 41 should be released (Step S207).

[0058]7.1 generating picture terminating notice processing -- explain generating picture terminating notice processing with reference to drawing 11 here. The image storage 4 which received the notice of the end of a generating picture from the image output device 3 releases the storage area of the primary storage unit 41 which the image data concerned was using, and updates image data information about the purport concerned (Step S601).

[0059]And the above-mentioned field quota processing is performed (Step S602). Next, it is distinguished whether the output of the image data which has whether all the generating pictures of the job concerned were completed and the same job ID information ended the prime controller 2 (Step S208). In distinction of Step S208, when all the generating pictures of the job concerned are not yet completed, (Step S208; No) and processing are again shifted to Step S201, and processing of Step S201 - Step S208 is repeated.

[0060]In distinction of Step S208, when all the generating pictures of the job concerned are completed, to the job recognition device 5, (Step S208; Yes) and the prime controller 2 delete the job information data corresponding to the job concerned (Step S209), and end a manuscript output process.

[0061]7.2 the operation in a memory accumulation transmitting mode -- explain the operation in a memory accumulation transmitting mode below. A note is made to drawing 12 and the processing flow chart in an accumulation transmitting mode is shown. First, the prime controller 2 performs the manuscript input process (= from Step S101 to Step S109) shown in drawing 6 (Step S301).

[0062]In this case, the image data corresponding to all the read manuscripts will be evacuated in the secondary-storage unit 42. And if the input of the image data corresponding to all the manuscripts is completed, the prime controller 2 will try a line connection to a partner point facsimile machine (Step S302). And it is distinguished whether the line connection was successful (Step S303).

[0063]In distinction of Step S303, when not having succeeded in a line connection, (Step S303; No) and processing will be again shifted to Step S302, and a line connection will be tried again. In distinction of Step S303, when it succeeds in a line connection, the manuscript output process (the = step S201 - Step S209) shown in drawing 10 is performed (Step S304), after the end of execution, a circuit is cut and processing is ended (Step S305).

[0064]7.3 the operation in manual transmission mode -- explain the operation in the case of manual transmission mode with reference to drawing 13 below. First, the prime controller 2 notifies the start of a job to a job recognition device with the job initiation directions from a user (Step S401). A job recognition device will register job information data (see the case of job ID=4 especially) as shown in drawing 2 by this (Step S402). Since the job concerned is a fax job and is in manual transmission mode, it will specify the fax generating picture unit 32 as an output unit, and, more specifically, will set manual transmission mode data.

[0065]And the prime controller 2 tries a line connection to a partner point facsimile machine (Step S403). And it is distinguished whether the line connection was successful (Step S404). In distinction of Step S404, when it does not succeed in a line connection, (Step S404; No) and the job information data concerned are deleted (Step S414), and processing is ended.

[0066]In distinction of Step S404, when it succeeds in a line connection, The prime controller 2 that the storage area of image data should be secured to the image storage 4, The assignment request data for obtaining use assignment to the assignment request data registration unit which the image storage 4 does not illustrate will be registered (Step S405), and an assignment request will be outputted to the image storage 4 (Step S406).

[0067]And the prime controller 2 distinguishes whether assignment of the storage area was permitted by the field quota processing mentioned later (Step S407). the case where assignment of a storage area is not permitted in distinction of Step S407 -- (Step S407; No) -- it will be in a waiting state as it is. In distinction of Step S407, when assignment of a storage area is permitted, (Step S407; Yes) and the

picture input device 1 will input and write the image data for an one-page manuscript in the storage area of the assigned primary storage unit 41 (Step S408).

[0068]And after the writing of the image data for 1 page is completed, an image input terminating notice is performed to the image storage 4 (Step S409), and the manuscript input process for 1 page is ended. The image output device 3 will output the image data for an one-page manuscript from the storage area of the assigned primary storage unit 41 by this (Step S410).

[0069]As a result, a manuscript will be transmitted to an other party facsimile machine via a telephone line. And an end of the output process of the image data for 1 page will perform a generating picture terminating notice to the image storage 4 that the storage area of the assigned primary storage unit 41 should be released (Step S411). Next, it is distinguished whether the processing to all the manuscripts ended the prime controller 2 (Step S412).

[0070]In distinction of Step S412, when the processing to all the manuscripts (transmission) is not yet completed, (Step S412; No) and processing are again shifted to Step S405, and processing of Step S405 - Step S412 is repeated. In distinction of Step S412, when processing of all the manuscripts is completed, (Step S412; Yes) and the prime controller 2, A circuit is cut (Step S413), the job information data corresponding to the job concerned is deleted to a job recognition device (Step S414), and the processing in manual transmission mode is ended.

[0071]8. Explain the more concrete example of concrete explanation of operation, next processing of the image processing device in this embodiment. Respectively the throughput of the throughput of an image input in the picture input device 1, and the generating picture in the image output device 3 In this case, 60 pages/m, The image-data-transfer capability of the primary storage unit 41 and the secondary-storage unit 42 60 pages/m, The transfer capability of the image data of one manuscript [in / in storage capacity of primary storage unit 41 / 2 pages (the 1st field [1] and the page / 2nd / storage area shall be expressed in the following explanation as the 2nd field [2] for the page / 1st / storage area) and FAX transmission] shall be 20 pages/m.

[0072]8.1 Drawing 14 of this embodiment of operation (when performing a priority processing), It is a figure explaining operation when the manual transmission processing (it is considered as job **) which inputs a 4-page manuscript from the conveyance manuscript read unit 12, and ***** at the FAX-images output unit 32 during processing of the print processing (it is considered as job **) in 20-page copy processing occurs.

[0073]The print processing of job ** which is copy processing [finishing / an image input / already] is started at the time $t=1$ (a unit is a processing cycle, for example). The image output device 3 is [in / perform a storage allocation demand one by one from the 1st page, and / the time $t=1$] the 1st page (it expresses with 1-1 among a figure.) of job **. The 1st field [1] of the primary storage unit 41 is assigned for having indicated to the front side of a hyphen having indicated to a job number and the backside for being with page number, and the 2nd field [2] of the primary storage unit 41 is assigned to the 2nd page (it expresses with 1-2 among a figure.) of job **.

[0074]Thereby, image transfer of the 1st page of job ** is carried out to the 1st field [1] of the primary storage unit 41 from the secondary-storage unit 42. Next, if it becomes the time $t=2$, the 1st page of job ** stored in the 1st field [1] of the primary storage unit 41 will be outputted from the record paper output unit 31, and storage deallocation of the 1st field [1] will be carried out.

[0075]On the other hand, image transfer of the 2nd page of job ** is carried out to the 2nd field [2] of the primary storage unit 41 from the secondary-storage unit 42. If the page [1st] (it expresses 2-1

among a figure.) FAX output requirement of job ** is made in parallel to the processing corresponding to these job **, the FAX-images output unit 32 will connect a telephone line.

[0076]And while the page [2nd] (it expresses 2-2 among a figure.) FAX output requirement of job ** is made when it comes to the time $t=3$, To the 1st page (it expresses with 2-1 among a figure) of job **, the 1st field [1] of the primary storage unit 41 is assigned, and an image input is performed by the conveyance manuscript read unit 12. On the other hand, the 2nd page of job ** stored in the 2nd field [2] of the primary storage unit 41 is outputted from the record paper output unit 31, and storage deallocation of the 2nd field [2] is carried out.

[0077]While the page [3rd] (it expresses 2-3 among a figure.) FAX output requirement of job ** is made when it comes to the time $t=4$, to the 2nd page of job **, the 2nd field [2] of the primary storage unit 41 is assigned, and an image input is performed by the conveyance manuscript read unit 12. The 1st page of job ** furthermore stored in the 1st field [1] of the primary storage unit 41 starts transmission to a partner point facsimile machine via a telephone line by the FAX-images output unit 32.

[0078]In the time $t=5$, the 1st page of job ** is under transmission, the 1st page of job ** is held in the 1st field [1] of the primary storage unit 41, and the 2nd page of job ** is held in the 2nd field [2]. In the time $t=6$, the 1st page of job ** completes transmission and storage deallocation of the 1st field [1] of the primary storage unit 41 is carried out. On the other hand, the 2nd page of job ** is held in the 2nd field [2].

[0079]In the time $t=7$, while the page [4th] (it expresses 2-4 among a figure.) FAX output requirement of job ** is made, to the 3rd page of job **, the 1st field [1] of the primary storage unit 41 is assigned, and an image input is performed by the conveyance manuscript read unit 12. The 2nd page of job ** furthermore stored in the 2nd field [2] of the primary storage unit 41 starts transmission to a partner point facsimile machine via a telephone line by the FAX-images output unit 32.

[0080]In the time $t=8$, the 2nd page of job ** is under transmission, the 2nd page of job ** is held in the 2nd field [2] of the primary storage unit 41, and the 3rd page of job ** is held in the 1st field [1]. In the time $t=9$, the 2nd page of job ** completes transmission and storage deallocation of the 2nd field [2] of the primary storage unit 41 is carried out. On the other hand, the 3rd page of job ** is held in the 1st field [1].

[0081]In the time $t=10$, to the 4th page of job **, the 2nd field [2] of the primary storage unit 41 is assigned, and an image input is performed by the conveyance manuscript read unit 12. The 3rd page of job ** furthermore stored in the 1st field [1] of the primary storage unit 41 starts transmission to a partner point facsimile machine via a telephone line by the FAX-images output unit 32.

[0082]In the time $t=11$, the 3rd page of job ** is under transmission, the 4th page of job ** is held in the 2nd field [2] of the primary storage unit 41, and the 3rd page of job ** is held in the 1st field [1]. In the time $t=12$, the 3rd page of job ** completes transmission and storage deallocation of the 1st field [1] of the primary storage unit 41 is carried out. On the other hand, the 4th page of job ** is held in the 2nd field [2].

[0083]In the time $t=13$, the image output device 3 performs the storage allocation demand about the 3rd page of job **, and the 1st field [1] of the primary storage unit 41 is assigned. Thereby, image transfer of the 3rd page of job ** is carried out to the 1st field [1] of the primary storage unit 41 from the secondary-storage unit 42. The 4th page of job ** furthermore stored in the 2nd field [2] of the primary storage unit 41 starts transmission to a partner point facsimile machine via a telephone line by the FAX-images output unit 32.

[0084]In the time $t=14$, the 3rd page of job ** stored in the 1st field [1] of the primary storage unit 41 is outputted from the image output device 3, and storage deallocation of the 1st field [1] is carried out. The 4th page of job ** is under transmission, and the 4th page of job ** is held in the 2nd field [2] of the primary storage unit 41. In the time $t=15$, the image output device 3 performs the storage allocation demand about the 4th page of job **, and the 1st field [1] of the primary storage unit 41 is assigned. Thereby, image transfer of the 4th page of job ** is carried out to the 1st field [1] of the primary storage unit 41 from the secondary-storage unit 42.

[0085]The 4th page of job ** furthermore stored in the 2nd field [2] of the primary storage unit 41 completes transmission, and storage deallocation of the 2nd field [2] of the primary storage unit 41 is carried out. Next, if it becomes the time $t=16$, the 4th page of job ** stored in the 1st field [1] of the primary storage unit 41 will be outputted from the image output device 3, and storage deallocation of the 1st field [1] will be carried out.

[0086]Image transfer of the 5th page of job ** is carried out to the 2nd field [2] of the primary storage unit 41 from the secondary-storage unit 42. Since transmission processing was furthermore completed about job **, a telephone line is disconnected. Henceforth, image output processing is performed in a similar manner about the 6th page - the 20th page of job ** (the time $t=17$ - time $t=32$).

[0087]When job ** which is manual transmission processing that a priority is high occurs like the above explanation during the print processing of job ** which is copy processing according to this embodiment, Job ** will have priority over job **, processing will be made, and job ** which is the after-end copy processing of manual transmission processing job ** will be resumed.

[0088]8.2 the operation (comparative example) when not performing a priority processing -- here explains the operation when not performing a priority processing with reference to drawing 15, in order to compare with the case where the priority processing of manual transmission processing of operation of the above-mentioned embodiment which performs priority operation of manual transmission processing is not performed.

[0089]The print processing of job ** which is copy processing [finishing / an image input / already] is started at the time $t=1$ (a unit is a processing cycle). In [the image output device 3 performs a storage allocation demand one by one from the 1st page, and] the time $t=1$, The 1st field [1] of the primary storage unit 41 is assigned to the 1st page (it expresses with 1-1 among a figure.) of job **, and the 2nd field [2] of the primary storage unit 41 is assigned to the 2nd page (it expresses with 1-2 among a figure.) of job **. Thereby, image transfer of the 1st page of job ** is carried out to the 1st field [1] of the primary storage unit 41 from the secondary-storage unit 42.

[0090]Next, if it becomes the time $t=2$, the 1st page of job ** stored in the 1st field [1] of the primary storage unit 41 will be outputted from the record paper output unit 31, and storage deallocation of the 1st field [1] will be carried out. On the other hand, image transfer of the 2nd page of job ** is carried out to the 2nd field [2] of the primary storage unit 41 from the secondary-storage unit 42. If the page [1st] (it expresses 2-1 among a figure.) FAX output requirement of job ** is made in parallel to the processing corresponding to these job **, the FAX-images output unit 32 will connect a telephone line.

[0091]In the time $t=3$, the image output device 3 is the 3rd page (among a figure) of job **. It expresses with 1-3. The receiving storage allocation demand is performed, the 1st field [1] of the primary storage unit 41 is assigned to the 3rd page of job **, and image transfer of the 3rd page of job ** is carried out to the 1st field [1] of the primary storage unit 41 from the secondary-storage unit 42. On the other hand, the 2nd page of job ** stored in the 2nd field [2] of the primary storage unit 41 is outputted from the

record paper output unit 31, and storage deallocation of the 2nd field [2] is carried out.

[0092]In the time $t=4$, the image output device 3 is the 4th page (among a figure) of job **. It expresses with 1-4. The receiving storage allocation demand is performed, the 2nd field [2] of the primary storage unit 41 is assigned to the 4th page of job **, and image transfer of the 4th page of job ** is carried out to the 2nd field [2] of the primary storage unit 41 from the secondary-storage unit 42. On the other hand, the 3rd page of job ** stored in the 1st field [1] of the primary storage unit 41 is outputted from the record paper output unit 31, and storage deallocation of the 1st field [1] is carried out.

[0093]In the time $t=5$, the image output device 3 is the 5th page (among a figure) of job **. It expresses with 1-5. The receiving storage allocation demand is performed, the 1st field [1] of the primary storage unit 41 is assigned to the 5th page of job **, and image transfer of the 5th page of job ** is carried out to the 1st field [1] of the primary storage unit 41 from the secondary-storage unit 42. On the other hand, the 4th page of job ** stored in the 2nd field [2] of the primary storage unit 41 is outputted from the record paper output unit 31, and storage deallocation of the 2nd field [2] is carried out.

[0094]In the time $t=6$, the image output device 3 is the 6th page (among a figure) of job **. It expresses with 1-6. The receiving storage allocation demand is performed, the 2nd field [2] of the primary storage unit 41 is assigned to the 6th page of job **, and image transfer of the 6th page of job ** is carried out to the 2nd field [2] of the primary storage unit 41 from the secondary-storage unit 42. On the other hand, the 5th page of job ** stored in the 1st field [1] of the primary storage unit 41 is outputted from the record paper output unit 31, and storage deallocation of the 1st field [1] is carried out.

[0095]Hereafter, making processing of job ** into a waiting state similarly, perform processing from the 7th page of job ** to the 18th page, and in the time $t=20$ the image output device 3, The storage allocation demand to the 20th page (it expresses with 1-20 among a figure.) of job ** is performed, The 2nd field [2] of the primary storage unit 41 is assigned to the 20th page of job **, and image transfer of the 20th page of job ** is carried out to the 2nd field [2] of the primary storage unit 41 from the secondary-storage unit 42. On the other hand, the 19th page of job ** stored in the 1st field [1] of the primary storage unit 41 is outputted from the record paper output unit 31, and storage deallocation of the 1st field [1] is carried out.

[0096]And while the page [2nd] (it expresses 2-2 among a figure.) FAX output requirement of job ** is made when it comes to the time $t=21$, to the 1st page of job **, the 1st field [1] of the primary storage unit 41 is assigned, and an image input is performed by the conveyance manuscript read unit 12. On the other hand, the 20th page of job ** stored in the 2nd field [2] of the primary storage unit 41 is outputted from the record paper output unit 31, and storage deallocation of the 2nd field [2] is carried out.

[0097]While the page [3rd] (it expresses 2-3 among a figure.) FAX output requirement of job ** is made when it comes to the time $t=22$, to the 2nd page of job **, the 2nd field [2] of the primary storage unit 41 is assigned, and an image input is performed by the conveyance manuscript read unit 12. As for the 1st page of job ** furthermore stored in the 1st field [1] of the primary storage unit 41, transmission is started by the FAX-images output unit 32 via a telephone line to a partner point facsimile machine.

[0098]In the time $t=23$, the 1st page of job ** is under transmission, the 1st page of job ** is held in the 1st field [1] of the primary storage unit 41, and the 2nd page of job ** is held in the 2nd field [2]. In the time $t=24$, the 1st page of job ** completes transmission and storage deallocation of the 1st field [1] of the primary storage unit 41 is carried out. On the other hand, the 2nd page of job ** is held in the 2nd field [2].

[0099]In the time $t=25$, while the page [4th] (it expresses 2-4 among a figure.) FAX output

requirement of job ** is made, to the 3rd page of job **, the 1st field [1] of the primary storage unit 41 is assigned, and an image input is performed by the conveyance manuscript read unit 12. The 2nd page of job ** furthermore stored in the 2nd field [2] of the primary storage unit 41 starts transmission to a partner point facsimile machine via a telephone line by the FAX-images output unit 32.

[0100]In the time $t = 26$, the 2nd page of job ** is under transmission, the 2nd page of job ** is held in the 2nd field [2] of the primary storage unit 41, and the 3rd page of job ** is held in the 1st field [1]. In the time $t = 27$, the 2nd page of job ** completes transmission and storage deallocation of the 2nd field [2] of the primary storage unit 41 is carried out. On the other hand, the 3rd page of job ** is held in the 1st field [1].

[0101]In the time $t = 28$, to the 4th page of job **, the 2nd field [2] of the primary storage unit 41 is assigned, and an image input is performed by the conveyance manuscript read unit 12. The 3rd page of job ** furthermore stored in the 1st field [1] of the primary storage unit 41 starts transmission to a partner point facsimile machine via a telephone line by the FAX-images output unit 32.

[0102]In the time $t = 29$, the 3rd page of job ** is under transmission, the 4th page of job ** is held in the 2nd field [2] of the primary storage unit 41, and the 3rd page of job ** is held in the 1st field [1]. In the time $t = 30$, the 3rd page of job ** completes transmission and storage deallocation of the 1st field [1] of the primary storage unit 41 is carried out. On the other hand, the 4th page of job ** is held in the 2nd field [2]. In the time $t = 31$, the 4th page of job ** stored in the 2nd field [2] of the primary storage unit 41 starts transmission to a partner point facsimile machine via a telephone line by the FAX-images output unit 32.

[0103]The 4th page of job ** is under transmission, and the 4th page of job ** is held in the 2nd field [2] of the primary storage unit 41 in the time $t = 32$. In the time $t = 33$, the 4th page of job ** stored in the 2nd field [2] of the primary storage unit 41 completes transmission, and storage deallocation of the 2nd field [2] of the primary storage unit 41 is carried out.

[0104]And since transmission processing was completed about job ** when it came to the time $t = 34$, a telephone line will be disconnected. Like the above explanation, in not performing the priority processing of manual transmission processing, After advancing a FAX output requirement until a page [1st] (in the case of an above-mentioned example the 1st page of job **) image input is started, For example, no less than 20 processing cycles are needed, and in spite of being in the state where a telephone line is connected, the fault that transmission of a picture is not performed is to arise in the meantime.

[0105]On the other hand, even if it is a case where other jobs (above-mentioned job **) are performed like this embodiment by performing the priority processing of manual transmission processing (above-mentioned job **), it becomes possible to process to an operator, without generating excessive waiting time.

[0106]Although the case where a FAX manual transmission job was applied to field quota processing of the primary storage unit 41 was explained in the above explanation, It is possible to apply also to the image processing device (for example, other image processing devices, such as an image rotation processing unit for outputting it, after changing the inputted oblong picture into a longwise picture) which is needed for operation of a job.

[0107]When a user performs FAX manual transmission in these results, even if other jobs, such as copy processing, have already been performed, The waiting time over manuscript read processing can be decreased substantially, the unnecessary waiting time after a dialup can be reduced, picture transmission

can be performed, and reduction of communication cost can also be aimed at.

[0108]

[Effect of the Invention]According to this invention, since the job about the manual transmission processing concerned is preferentially performed even if other jobs are performed when a user performs manual transmission processing, the waiting time over manuscript read processing, image processing, etc. can be shortened substantially, and a user's user-friendliness can be raised.

[0109]The unnecessary waiting time of the communication line after communication line connection, such as a telephone line, can be reduced, picture transmission can be performed, and it becomes possible to aim at reduction of communication cost.

[Translation done.]